AMENDMENTS TO THE CLAIMS

1 – 20. (Canceled)

21.   (Currently Amended) A method for objectively assessing speech quality comprising the steps of:

detecting distortions in an interval of speech activity using envelope information;

~~and~~

modifying an ~~a single-ended~~ objective speech quality assessment value associated with the speech activity to reflect the impact of the distortions ~~distortion~~ on subjective speech quality assessment; and

prior to the step of detecting, determining the interval of speech activity using the envelope information.

22.   (Currently Amended) The method of claim 21, wherein the step of modifying includes the step of determining the ~~single-ended~~ objective speech quality assessment value ~~values~~ for the speech activity.

23.   (Previously Presented) The method of claim 21, wherein the distortions being detected are impulsive noise, abrupt stop or abrupt start.

24.   (Previously Presented) The method of claim 21, wherein the step of detecting includes the step of determining a distortion type.

25.   (Previously Presented) The method of claim 24, wherein the distortion type is determined to

be impulsive noise if the envelope information indicates that the speech activity can be perceived by a human listener to be noise and if the interval is of a duration long enough to be perceived by a human listener but not too long for a short burst.

26. (Currently Amended) The method of claim 24, wherein the distortion type is determined to be impulsive noise if the envelope information indicates that the speech activity can be perceived by a human listener to be noise, if a ratio of the ~~single-ended~~ objective speech quality assessment value to a modulation noise reference unit indicates a human listener would perceive annoying noise, and if the interval is of a duration long enough to be perceived by a human listener but not too long for a short burst.

27. (Currently Amended) The method of claim 24, wherein the ~~single-ended~~ objective speech quality assessment value associated with the speech activity is modified in accordance with the following equation to obtain a modified ~~single-ended~~ objective speech quality assessment value if the distortion type is impulsive noise:

$$\tilde{v}_s(m) = \frac{v_s(m)}{1 + \exp\left[-8.2(m - m_I)/e(l_I) - 10\right]}$$

where $v_s(m)$ is the ~~single-ended~~ objective speech quality assessment value, $\tilde{v}_s(m)$ is the modified ~~single-ended~~ objective speech quality assessment value, "m" is a frame of the interval of speech activity, "l_I" is an impulsive noise frame, "m_I" is the frame m impacted most by impulsive noise frame "l_I", and "$e(l_I)$" is a frame envelope for impulsive noise frame "l_I".

28. (Previously Presented) The method of claim 24, wherein the distortion type is determined to be abrupt stop if the envelope information indicates that there was an sufficient negative change in

frame energy from one frame to another to be considered an abrupt stop and if the interval is of a duration longer than a short burst.

29.   (Previously Presented) The method of claim 24, wherein the distortion type is determined to be abrupt stop if the envelope information indicates that a maximum frame envelope had sufficient energy prior to ending the interval, and if the interval is of a duration longer than a short burst.

30.   (Currently Amended) The method of claim 24, wherein the single ended objective speech quality assessment value associated with the speech activity is modified in accordance with the following equation to obtain a modified single ended objective speech quality assessment value if the distortion type is impulsive noise:

$$\tilde{v}_s(m) = |\Delta e(l_M)| \left[\frac{6}{1 + \exp[-2(m - m_M - 3]} - 6 \right]$$

where $v_s(m)$ is the single ended objective speech quality assessment value, $\tilde{v}_s(m)$ is the modified single ended objective speech quality assessment value, "m" is a frame of the interval of speech activity, "l_M" is an abrupt stop frame, "m_M" is the frame m impacted most by abrupt stop frame "l_M", and "$\Delta e(l_M)$" is a delta frame envelope for abrupt stop frame "l_M".

31.   (Previously Presented) The method of claim 24, wherein the distortion type is determined to be abrupt start if the envelope information indicates that there was an sufficient positive change in frame energy from one frame to another to be considered an abrupt start and if the interval is of a duration longer than a short burst.

32.   (Previously Presented) The method of claim 24, wherein the distortion type is determined to

be abrupt stop if the envelope information indicates that a maximum frame envelope had sufficient energy towards a beginning of the interval, and if the interval is of a duration longer than a short burst.

33.   (Currently Amended) The method of claim 24, wherein the ~~single-ended~~ objective speech quality assessment value associated with the speech activity is modified in accordance with the following equation to obtain a modified ~~single-ended~~ objective speech quality assessment value if the distortion type is impulsive noise:

$$\tilde{v}_s(m) = \frac{v_s(m)}{1 + \exp\left[-0.4(m - m_s)/\Delta e(l_s) - 10\right]}$$

where $v_s(m)$ is the ~~single-ended~~ objective speech quality assessment value, $\tilde{v}_s(m)$ is the modified ~~single-ended~~ objective speech quality assessment value, "m" is a frame of the interval of speech activity, "l_s" is an abrupt start frame, "m_s" is the frame m most impacted by abrupt start frame "l_s", and "$\Delta e(l_s)$" is a delta frame envelope for abrupt start frame "l_s".

34.   (Canceled)

35.   (Currently Amended) An objective speech quality assessment system comprising:

        means for detecting distortions in an interval of speech activity using envelope information; and

        means for modifying an ~~a single-ended~~ objective speech quality assessment value associated with the speech activity to reflect the impact of the distortions on subjective speech quality assessment, wherein

        the means for detecting includes a means for determining a distortion type, and

the means for detecting includes a voice activity detector for detecting intervals of speech activity, wherein the means for determining a distortion type examines intervals of speech activities detected by the voice activity detector.

36.   (Currently Amended) The objective speech quality assessment system of claim 35, wherein the means for modifying includes a means for determining the ~~single-ended~~ objective speech quality assessment values without accounting for distortions for the speech activity.

37.   (Previously Presented) The objective speech quality assessment system of claim 35, wherein the distortions being detected are impulsive noise, abrupt stop or abrupt start.

38.   (Canceled)

39.   (Canceled)

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END OF CLAIM LISTING